Approach to patient with Chronic Diarrhea

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- **To identify the difference bet. Acute and chronic diarrhea.**
- **To know the different pathophysiological mechanisms of chronic diarrhea.**
- **To know the different causes.**
- **To be able to evaluate patient with chronic diarrhea.**

In most cases, the physician's working definition of diarrhea is increased stool frequency (more than two or three bowel movements per day) or liquidity of feces.

Diarrhea can range in severity from an acute self-limited episode to a severe, life-threatening illness. To properly evaluate the complaint, the physician must determine the patients normal bowel pattern and the nature of the current symptoms.

1-Acute diarrhea

Diarrhea acute in onest and persisting for less than 3 weeks is most commonly caused by infectious agents, bacterial toxins (either preformed or produced in the gut), or drugs.

A-Non-inflammatory diarrhea

Watery, nonbloody diarrhea associated with periumbilical cramps, bloating, nausea, or vomiting suggests a small bowel source caused by either a toxin-producing bacterium (enterotoxigenic E coli [ETEC], Staphylococcus aureus, Bacillus cereus. **Because tissue invasion does not occur, fecal leukocytes are not present.**

The presence of **fever and bloody diarrhea (dysentery) indicates colonic tissue damage caused by invasive microorganisms** (shigellosis, salmonellosis, campylobacter or yersinia infection, amebiasis) or a toxin (C difficile, E coli O 157: H7). Because these organisms involve predominantly the colon, the diarrhea is small in volume (< 1 L/d) and associated with left lower quadrant cramps, urgency, ad tenesmus. **Fecal leukocytes** usually are present, cytomegalovirus can cause intestinal ulceration with watery or bloody diarrhea.

Causes of acute infectious diarrhea

Noninflammatory diarrhea	Inflammatory diarrhea
Viral Norwalk virus Rotavirus	Viral Cytomegalovirus
Protozoal Giardia lamblia Cryptosporidium	Protozoal Entamoeba histolytica
Bacterial 1-Preformed enterotoxin production Staphylococcus aureus Bacillus cereus Clostridium perfringens 2-Enterotoxin production Enterotoxigenic E coli (ETEC) Vibrio cholerae	Bacterial 1-Cytotoxin production Enterohemorrhagic Ecoli O 157:H5 (EHEC) Vibrio parahaemolyticus Clostridium difficile 2-Mucosal invasion Shigella Campylobrater jejuni Salmonella Enteroinvasive E coli (EIEC)

Evaluation

➤ In over 90% of patients with acute diarrhea, the illness is mild and self-limited, responding within 5 days to simple rehydration therapy or antidiarrheal agents; diagnostic investigation is unnecessary.

➤ If diarrhea worsens or persists for more than 7-10 days, stool should be sent for fecal leukocyte determination, ovum and parasite evaluation, and bacterial culture.

Chronic diarrhea

Is a diarrhea lasting more than 3 weeks) is rarely caused by infectious disease.
Chronic diarrhea is a common symptom with many potential underlying causes..

Chronic diarrhea

Etiology

The causes of chronic diarrhea may be grouped into six major pathophysiologic categoris.

Causes of chronic diarrhea

Osmotic diarrhea	**Malabsorption syndromes**
CLUES: Stool volume decreases with fasting; increased stool osmotic gap	CLUES: Weight loss, abnormal laboratory values; fecal fat > 10 g/24h
Secretory diarrhea	**Motility disorders**
CLUES: Large volume (> 1 L/d); little change with fasting; normal stool osmotic gap	CLUES: Systemic disease or prior abdominal surgery
	Chronic infections
Inflammatory conditions	1-Parasites: Giardia lamblia, Entamoeba histolytica
CLUES: Fever, hematochezia, abdominal pain	2-AIDS-related:
	Viral: Cytomegalovirus, HIV infection
	Bacterial: Clostridium difficile

A-Osmotic diarrheas

➢ As stool leaves the colon, fecal osmolality is equal to the serum osmolality, ie, approximately 290 mosmol/kg. The stool osmolality may be estimated by multiplying the stool
 $(Na^+ + K^+) \times 2$.

The osmotic gap is the difference between the measured osmolality of serum and the estimated stool osmolality and is normally less than 50 mosmol/kg. An increased osmotic gap (> 125 mosm/kg) implies that the diarrhea is caused by ingestion or malabsorption of an osmotically active substance.

> **The most common causes** are disaccharidase deficiency (lactase deficiency), laxative abuse, and malabsorption. **Osmotic diarrheas resolve during fasting.** Those caused by malabsorbed carbohydrates are characterized by abdominal distention, bloating, and flatulence due to increased colonic gas production.

> Disaccharidase deficiencies are common and should be considered in all patients with chronic diarrhea. It may also be **acquired after** an episode of viral gastroenteritis, medical illness, gastrointestinal surgery.

B-Secretory conditions

➢ **Increased intestinal secretion or decreased absorption results in a high-volume watery diarrhea with a normal osmotic gap. There is little change in stool output during the fasting state. Causes include endocrine tumors (Stimulating intestinal or pancreatic secretion), bile salt malabsorption , and laxative abuse.**

C-Inflammatory consitions

➢ **Diarrhea is present in most patients with inflammatory bowel disease. A variety of other symptoms may be present, including abdominal pain, fever, weight loss, and hematochezia.**

D-Malabsorptive conditions

➢ **The major causes are small mucosal intestinal diseases, intestinal resections, lymphatic obstruction (celiac disease), small intestinal bacterial overgrowth, and pancreatic insufficiency. Its characteristics are weight loss, osmotic diarrhea, and nutritional deficiencies. Significant diarrhea in the absence of weight loss is not likely to be due to malabsorption.**

E-Motility disorders

➢ **The most common cause of chronic diarrhea is irritable bowel syndrome.**

F- Chronic infections

➢ **Chronic parasitic infections include the protozoans giardia, Entamoeba histolytica, and cyclospora as well as the intestinal nematodes.**

G-Factitious diarrhea

➢ **Caused by laxative abuse.**

Clinical classification:

➢ **A classification of the more important causes of chronic diarrhea, based on practical clinical considerations**

➢ **In general, a focused clinical history provides an initial assessment and provisional segregation of patients with <u>functional</u> (common) and <u>organic</u> (relatively less common) disorders**

Clinical classification:

Functional disorders
- mainly irritable bowel syndrome

Organic causes
- inflammatory disease (mainly ulcerative colitis, Crohn disease, ischemia, tuberculosis)
- neoplasia (mainly colon carcinoma; often alternating with constipation)
- malassimilation syndrome (malabsorption and maldigestion)
- endocrine-hormonal causes (e. g., hyperthyroidism, carcinoid, islet cell tumor, diabetes)
- miscellaneous (e. g., parasitic infection, laxatives, lactose intolerance, AIDS)

Clinical classification:

History	Functional diarrhea	Organic diarrhea
Duration	years, often intermittent	usually weeks to months
Frequency	mainly morning and postprandial	day and night
Weight	stable	falling
Stool consistency	loose, watery; sometimes with mucous	bloody, mucopurulent or voluminous–fatty

Table 6.24	Chronic gastrointestinal symptoms suggestive of a functional gastrointestinal disorder (FGID)

Nausea alone
Vomiting alone
Belching
Chest pain unrelated to exercise
Postprandial fullness
Abdominal bloating
Abdominal discomfort/pain (right or left iliac fossa)
Passage of mucus per rectum
Frequent bowel actions with urgency first thing in morning

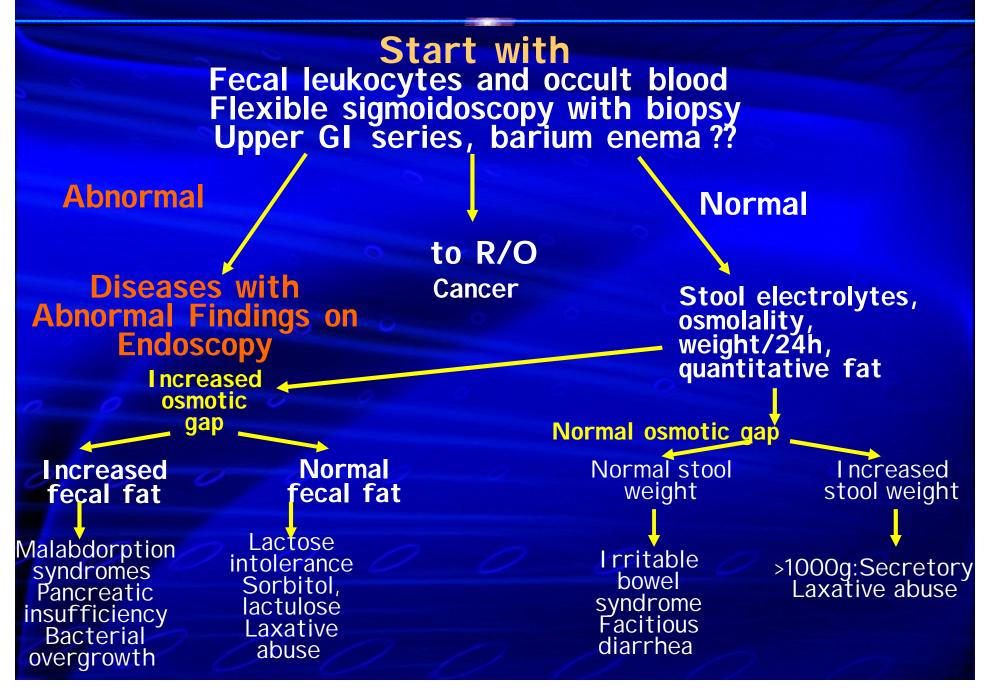**The most important thing is that the patient get relieved after defecation**

Evaluation of chronic diarrhea:

The history and physical examination commonly suggest the underlying pathophysiology that guides the subsequent diagnostic workup.

Chronic diarrhea

Exclude:
1-Causes of acute diarrhea
2-Lactose intolerance
3-Previous gastric surgery or ileal resection
4-Parasitic infections
5-Medications (laxatives)
6-Systemic disease (DM, hyperthyroidism)

Start with

Fecal leukocytes and occult blood
Flexible sigmoidoscopy with biopsy
Upper GI series, barium enema ??

Abnormal

Normal

to R/O
Cancer

Diseases with
Abnormal Findings on
Endoscopy

Stool electrolytes, osmolality, weight/24h, quantitative fat

Increased osmotic gap

Normal osmotic gap

Increased fecal fat

Normal fecal fat

Normal stool weight

Increased stool weight

Malabdorption syndromes
Pancreatic insufficiency
Bacterial overgrowth

Lactose intolerance
Sorbitol, lactulose
Laxative abuse

Irritable bowel syndrome
Facitious diarrhea

>1000g:Secretory
Laxative abuse

Diseases with Abnormal Findings on Endoscopy

1-Ulcerative Colitis
2- Crohns disease
3- chronic infectious enterocolitis (Entamoeba histolytica, tuberculosis)
4- ischemic colitis
5- radiation colitis
6- pseudomembranous colitis
7- venereal proctitis (Neisseria gonorrhoeae, Chlamydia, herpes simplex virus),

A-Stool analysis

1-Twenty four hour stool collection for weight and quantitative fecal fat. A stool weight of more than 300 g/24 h confirms diarrhea. A weight greater than 1000-1500 g suggests a secretory process. A fecal fat determination in excess of 10 g/24 h indicates a malabsorpitive disorder.

2-Stool osmolality: A stool pH less than 5.6 is consistent with carbohydrate malabsorption.

3-Stool laxative screen: In cases of suspected laxative abuse, stool magnesium, phosphate, and sulfate levels may be measured.

4-Fecal leukocytes: The presence of fecal leukocytes implies inflammatory diarrhea.

5-Stool for ova and parasites: The presence of giardia and E histolytica may be detected in wet mounts. A fecal ELISA for giardia-specific antigen is a more sensitive and specific.

B-Blood tests

1-Routine laboratory tests: CBC, serum electrolytes, calcium, phosphorus, albumin, TSH. Anemia occurs in malabsorption syndromes (folate, iron deficiency, vitamin B_{12}). Hypoalbuminemia is present in malabsorption, protein-losing enteropathies, and inflammatory diseases.

2-Other laboratory tests: In patients with suspected malabsorption, serologic testing for celiac sprue includes IgG and IgA antigliadin or tissue transglutaminase antibodies, serum VIP (VIPoma), calcitonin (medullary thyroid carcinoma), gastrin (Zollinger-Ellison syndrome). Urine should be sent for 5-HIAA (carcinoid), VMA, metanephrine (pheochromocytoma).

3-Endoscopic examination and mucosal biopsy: colonoscopy is helpful in the detection of inflammatory bowel disease. Upper endoscopy with small bowel biopsy is performed when a small intestinal malabsorptive disorder is suspected (celiac sprue, Whipple's disease). If bacterial overgrowth is suspected, the diagnosis is confirmed with noninvasive breath tests (14C D-xylose, glucose, or lactulose) or by obtaining an aspirate of small intestinal contents for quantitative aerobic and anaerobic bacterial culture.

4-Other imaging studies: Calcification on a plain abdominal radigraph confirms a diagnosis of chronic pancreatitis as well as pancreatic cancer. Small intestinal barium radiography is helpful in the diagnosis of Crohn's disease, small bowel lymphoma, carcinoid, and jejunal diverticula.

Treatment

➤ **Loperamide:** 4 mg initialty, then 2 mg after each loose stool. Diphenoxylate with atropine: one tablet three or four times daily.

➤ **Clonidine:** α**2 –** Adrenergic agonists inhibit intestinal electrolyte secretion. Clonidinemay help in some patients with secretory diarrheas, diabstic diarrhea, or cryptosporidiosis.

➢ **Octreotide**: This somatostatin analog stimulates intestinal fluid secretion. It is given for secretory diarrheas due to neuroendocrine tumors (VIPomas, carcinoid).

➢ **Cholestyramine**: may be useful in patients with bile salt-induced diarrhea secondary to intestinal resection or ileal disease.

Thank You